



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

KSN SEOUL, KOREA
2026

The 46th Annual Meeting of the Korean Society of Nephrology



Jun 11 (Thu) – 14 (Sun), 2026

COEX, Seoul, Korea

Abstract Type : Poster exhibition

Abstract Submission No.: A-0283

Abstract Topic : Interventional Nephrology

Subclavian Steal Syndrome Presenting as Neurological Symptoms and Access Dysfunction in a Hemodialysis Patient: A Case Report

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Case Study : A 79-year-old male with diabetic nephropathy-induced end-stage renal disease presented with a weak thrill in his left brachiocephalic arteriovenous fistula (AVF), created two months prior. Despite prior clinic visits, no interventions had been performed. The patient reported worsening symptoms post-dialysis, including slurred speech, blurred vision, and severe dizziness persisting until the next day, even with minimal ultrafiltration. He also noted a history of lower blood pressure in his left arm. Doppler ultrasound of the brachial artery revealed a flow volume of 688 ml/min and a significantly delayed acceleration time (0.23 seconds), suggesting upstream arterial stenosis. His neurological symptoms indicated posterior cerebral hypoperfusion. We hypothesized that the AVF creation increased left upper extremity blood demand, triggering a steal phenomenon via the vertebral artery and compromising posterior cerebral perfusion. Retrograde angiography via the AVF confirmed severe left subclavian artery stenosis and restricted antegrade vertebral artery flow, confirming the diagnosis of Subclavian Steal Syndrome (SSS). The patient underwent successful subclavian artery stenting, which markedly improved both his neurological symptoms and access blood flow. Subclavian artery stenosis is more prevalent in chronic kidney disease patients with arterial comorbidities. Neurological symptoms in hemodialysis patients are often non-specific, easily leading to underdiagnosis. This case emphasizes the necessity of routine bilateral blood pressure measurement before AVF creation to prevent SSS. Furthermore, clinicians must maintain a high index of suspicion for SSS when hemodialysis patients present with posterior cerebral symptoms.

figure1.png



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Figure 1. (A) Aortogram reveals stenosis of the subclavian artery (left arrow) and the absence of antegrade flow in the vertebral artery (right arrow). (B) Following stent deployment, the subclavian stenosis is successfully resolved, and antegrade blood flow in the vertebral artery is restored.

figure1.png

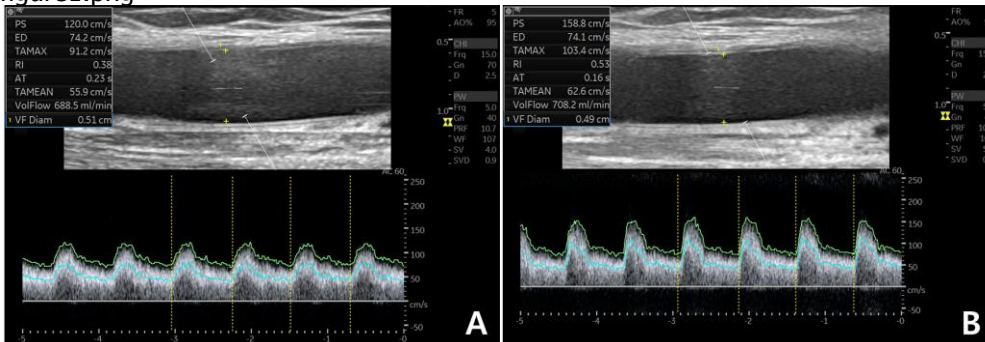


Figure 2. (A) Pulsed-wave (PW) Doppler ultrasound of the brachial artery demonstrates a delayed acceleration time of 0.23 seconds. (B) Following stent deployment for the subclavian artery stenosis, the acceleration time is improved to 0.16 seconds.